

## *In vitro* evaluation of the anti-fungal activity of the crude *Rosmarinus eriocalyx* Jord. & Fourr. extracts in batch mode

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**ABSTRACT:**

Four pathogenic fungal species of *Alternaria* isolated from tomato plants were subjected to the effects of foliar and methanolic extract of *Rosmarinus eriocalyx* Jord. & Fourr. Batch mode (discontinuous growth) for 120 h, was used to assess the growth of two fungal species according to three parameters *viz.*, pH, dry weight of inoculum and optical density. The kinetics of the parameters analyzed showed lower development of most fungal strains and a low microbial biomass in the presence of the plant extract compared with those of the controls, or even with those obtained in the presence of synthetic chemical pesticide. The most promising results were obtained with *Alternaria alternata* and *Alternaria arborescens*; these two species seem the most sensitive to the leaf and floral extracts of the tested plant. This reductive effect of the natural extract on the biomass of fungal strains and its influence on decreasing the pH during the growth phase corresponds with the composition of the rosemary leaves extracts. A major peak, representing rosmarinic acid, was revealed by ESI LC-MS /MS and is compatible with the pH decline. The foliar and floral extracts of *R. eriocalyx* indicated significant antifungal properties. The results warrants further investigations and the testing of other phytopathogenic fungal species responsible for serious damage to crops. Identifying the natural bioactive substances in plant extracts should provide alternatives to the use of synthetic pesticides.

**Keywords:**

Antifungal activity, *Alternaria*, Foliar and floral extract, *Rosmarinus eriocalyx*, Batch mode.